

# NATIONAL BUREAU OF STANDARDS REPORT

NBS PROJECT

0800-08101

NBS REPORT

8072

AUG 21 1963

REPORT ON LATIN AMERICA TRAVEL

CONCERNING

LATIN AMERICAN STANDARDS

AND

STANDARDS FOR IRON AND STEEL

May 12 - June 15, 1963

By

LeRoy L. Wyman  
Consultant, Metallurgy Division

## IMPORTANT NOTICE

NATIONAL BUREAU OF STANDARDS  
for use within the Government.  
and review. For this reason, the  
whole or in part, is not authorized  
Bureau of Standards, Washington, D.C.  
the Report has been specifically

Approved for public release by the  
director of the National Institute of  
Standards and Technology (NIST)  
on October 9, 2015

Business accounting documents intended  
subjected to additional evaluation  
listing of this Report, either in  
the Office of the Director, National  
by the Government agency for which  
copies for its own use.



U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS

# THE NATIONAL BUREAU OF STANDARDS

## Functions and Activities

The functions of the National Bureau of Standards are set forth in the Act of Congress, March 3, 1901, as amended by Congress in Public Law 619, 1950. These include the development and maintenance of the national standards of measurement and the provision of means and methods for making measurements consistent with these standards; the determination of physical constants and properties of materials; the development of methods and instruments for testing materials, devices, and structures; advisory services to government agencies on scientific and technical problems; invention and development of devices to serve special needs of the Government; and the development of standard practices, codes, and specifications. The work includes basic and applied research, development, engineering, instrumentation, testing, evaluation, calibration services, and various consultation and information services. Research projects are also performed for other government agencies when the work relates to and supplements the basic program of the Bureau or when the Bureau's unique competence is required. The scope of activities is suggested by the listing of divisions and sections on the inside of the back cover.

## Publications

The results of the Bureau's research are published either in the Bureau's own series of publications or in the journals of professional and scientific societies. The Bureau publishes three periodicals available from the Government Printing Office: The Journal of Research, published in four separate sections, presents complete scientific and technical papers; the Technical News Bulletin presents summary and preliminary reports on work in progress; and the Central Radio Propagation Laboratory Ionospheric Predictions provides data for determining the best frequencies to use for radio communications throughout the world. There are also five series of nonperiodical publications: Monographs, Applied Mathematics Series, Handbooks, Miscellaneous Publications, and Technical Notes.

A complete listing of the Bureau's publications can be found in National Bureau of Standards Circular 460, Publications of the National Bureau of Standards, 1901 to June 1947 (\$1.25), and the Supplement to National Bureau of Standards Circular 460, July 1947 to June 1957 (\$1.50), and Miscellaneous Publication 240, July 1957 to June 1960 (includes Titles of Papers Published in Outside Journals 1950 to 1959) (\$2.25); available from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.

## INDEX

1.	Abstract. . . . .	.1
2.	Sponsorship . . . . .	.2
3.	Objectives of Trip. . . . .	.3
4.	Santiago, Chile, May 15-18, 1963. . . . .	.4
4.1	Santiago, Chile, U.S. Embassy . . . . .	.5
4.2	Steel Seminar . . . . .	.5
4.3	U. S. Comments on Proposed Standards. . . . .	.7
4.4	Instituto Latin Americano del Fierro y el Acero . . . . .	.7
4.5	AID Mission Visit . . . . .	.8
4.6	Seminar Session . . . . .	.8
4.7	Instituto Latin Americano del Fierro y el Acero Activities. . . . .	.8
4.8	Comision Economica para America Latina de las Naciones Unidas Visit. . . . .	.9
4.9	Hoerning Visit. . . . .	.9
4.10	Ryberg Visit. . . . .	.10
4.11	Chilean Steel Institute . . . . .	.10
4.12	Instituto Nacional de Investigaciones Tecnologicas y Normalizacion Visit . . . . .	.10
4.13	'Graduation'. . . . .	.10
4.14	Instituto Latin Americano del Fierro y el Acero . . . . .	.11
4.15	Integrated Production . . . . .	.11

5.	Buenos Aires, Argentina, May 18-21, 1963. . . . .	.13
5.1	Buenos Aires, May 18-21, 1963 . . . . .	.14
5.2	U. S. Embassy . . . . .	.14
5.3	Visit with Dr. Brown. . . . .	.14
5.4	Instituto Argentina de Racionalizacion de Materiales Visit. . . . .	.14
5.5	Visit with Ing. Yermoli . . . . .	.15
5.6	Instituto Nacional de Tecnologia Industrial Visit . . . . .	.16
5.7	Low-Alloy Steel . . . . .	.17
6.	Montevideo, Uruguay, May 21-22, 1963. . . . .	.18
6.1	Montevideo, Uruguay, U. S. Embassy. . . . .	.19
6.2	AID Mission . . . . .	.19
6.3	Instituto Uruguay de Normas Tecnicas Visit. . . . .	.19
7.	Rio de Janeiro, Brazil, May 22-26, 1963 . . . . .	.21
7.1	Rio de Janeiro, Brazil, May 22-26, 1963 . . . . .	.22
7.1.1	U. S. Embassy . . . . .	.22
7.1.2	Associacao Brasileiro de Normas Tecnicas Visit. . . . .	.22
7.1.3	U. S. Embassy . . . . .	.23
8.	Sao Paulo, Brazil, May 26-28, 1963. . . . .	.24
8.1	Sao Paulo, Brazil, May 26-28, 1963. . . . .	.25
8.1.1	International Nickel Company - Mr. Hunnicutt. . . . .	.25
8.1.2	U. S. Consulate . . . . .	.25
8.1.3	Instituto de Pesquisas Tecnologicas Visit . . . . .	.25
8.1.4	Associacao Brasileiro de Normas Tecnicas Visit. . . . .	.26
8.1.5	Associacio Brasileira de Metales Visit. . . . .	.26
8.1.6	Associacio Brasileira de Metales Cast Iron Seminar. . . . .	.27

9.	Asuncion, Paraguay, May 29-30, 1963. . . . .	.29
9.1	Asuncion, Paraguay, May 29-30, 1963. . . . .	.30
9.1.1	U. S. Embassy. . . . .	.30
9.1.2	Comite Paraguayan de Normas Tecnicas . . . . .	.30
9.1.3	Moser Visit. . . . .	.31
10.	Buenos Aires, Argentina, May 30-31, 1963 . . . . .	.32
10.1	Instituto Argentina de Racionalizacion de Materiales . . . . .	.32
11.	La Paz, Bolivia, June 2, 1963. . . . .	.33
12.	Lima, Peru, May 31-June 6, 1963. . . . .	.34
12.1	Lima, Peru, May 31-June 6, 1963. . . . .	.35
12.1.1	U. S. Embassy. . . . .	.35
12.1.2	Instituto Nacional de Normas Tecnicas Industriales y Certification Visit. . . . .	.35
12.1.3	Iron and Steel Institute . . . . .	.36
12.1.4	University Nacional de Ingenieria. . . . .	.36
12.1.5	Ferrum Peru, S.A.. . . . .	.37
12.1.6	Society of National Industries . . . . .	.37
12.1.7	Stanford Research Institute Survey . . . . .	.37
12.1.8	Luncheon . . . . .	.38
12.2	Miscellaneous. . . . .	.38
12.2.1	Leather Standards. . . . .	.38
12.2.2	Cement . . . . .	.38
13.	Guayaquil, Ecuador, June 6-8, 1963 . . . . .	.39
13.1	Guayaquil, Ecuador, June 6-8, 1963 . . . . .	.40
13.1.1	U. S. Consulate. . . . .	.40
13.1.2	La Cemento Nacional. . . . .	.40
13.1.3	Compania Tecnica de Construcciones . . . . .	.40

13.1.4	Empressa Electrica . . . . .	.41
13.1.5	Simon Bolivar College . . . . .	.41
14.	Quito, Ecuador, June 8-12, 1963 . . . . .	.42
14.1	Quito, Ecuador, June 8-12, 1963 . . . . .	.43
14.1.1	U. S. Embassy . . . . .	.43
14.1.2	AID Visit . . . . .	.43
14.1.3	Engineering Society . . . . .	.43
14.1.4	U. S. Embassy . . . . .	.44
14.1.5	Siderurgica Ecuatoriana . . . . .	.44
14.1.6	Centro de Desarrollo . . . . .	.44
15.	Bogota, Colombia, June 12-15, 1963. . . . .	.46
15.1	Bogota, Colombia, June 12-15, 1963. . . . .	.47
15.1.1	U. S. Embassy . . . . .	.47
15.1.2	AID Mission . . . . .	.47
15.1.3	Instituto de Investigaciones Tecnologicas . . . . .	.47
15.1.4	Instituto Colombiano de Normas Tecnicas . . . . .	.48
15.1.5	Ministry of Development Visit (Council on Standards). . . . .	.48
16.	Standards: Broad Significance. . . . .	.50
16.1	Standards Promotion . . . . .	.50
16.2	Standards Assistance. . . . .	.50
16.2.1	Indoctrination. . . . .	.51
16.2.2	Organization. . . . .	.51
16.2.3	Operation . . . . .	.51
16.2.4	Technical . . . . .	.51
17.	Translations. . . . .	.52
18.	The English-Metric Problem. . . . .	.53
19.	Testing Facilities. . . . .	.54
20.	Embassy . . . . .	.55
21.	Recommendations . . . . .	.56

REPORT ON LATIN AMERICA TRAVEL  
CONCERNING  
LATIN AMERICAN STANDARDS  
AND  
STANDARDS FOR IRON AND STEEL  
By  
LeRoy L. Wyman  
Consultant, Metallurgy Division

1. ABSTRACT:

This report covers the part-time participation in the first of a series of three standards-writing seminars scheduled for Santiago, Chile during 1963 under COPANT-OAS-ILAFA sponsorship, as well as visits to most of the other Latin American countries in the interests of promoting the formation or enhancing the effectiveness of standards-writing bodies.

## 2. SPONSORSHIP:

This trip was under the sponsorship of the Office of Technical Services of the Department of Commerce.

Standards activities extend through the Department of Commerce, and to the National Bureau of Standards. Also, Bureau personnel are engaged in standards work both in the government and with non-government standards writing groups, the American Society for Testing and Materials, Committee A-10 on Stainless Steel, Chairman of Committee E-4 on Metallography, Member of Advisory Committee of A-1 on Steel, and a member of the Executive Committee of the Division of Materials Sciences - all of A.S.T.M. The author is also a member of the special subcommittee of Committee A-1 on Steel which acts for ASTM on behalf of ASA for international standards (ISO and COPANT) for iron and steel.

The American Standards Association represents the United States with respect to standards practices at the international level, thus is a member of the Pan-American Standards Committee (PASC, or COPANT). The U.S. (ASA) is currently a member of the Council of COPANT and holds the Vice-Presidency of the organization.

In attending the seminar on iron and steel, the author was designated by ASA as our official representative.

### 3. OBJECTIVES OF TRIP:

In continuation of the Latin American standards activities in which the author participated in a September-November 1962 visit (NBS Report 7793), this trip was for the purpose of:

1. Participation in Iron and Steel Seminar I, at Santiago, Chile.
2. Discussing standards activities in Argentina, Brazil, Peru, and Uruguay, and
3. Assisting in the formation of national standards bodies in Bolivia, Colombia, Ecuador, and Paraguay.
4. Discussing standards and standards activities with the AID staffs in each of the above countries.

## 4. Santiago, Chile, May 15-18, 1963

Mr. Morris Allen	Comm. Attache, U. S. Embassy
Mr. Swett	Comm. Assistant
Dr. Charles Martin	Deputy Director, AID
Dr. Bruno Leuschner	Consultant, CEPAL
Dr. Ing. Carlos Hoerning	Director, Instituto Nacional de Investigaciones Tecnologicas y Normalizacion (INDETECNOR)
Ing. Carlos Krumm	Technical Staff, INDETECNOR
Ing. Fernando Aguirre Tupper	Secy. General, Instituto Latin Americano del Fierro y el Acero (ILAFA)
Ing. Anibal Gomez	Technical Staff, ILAFA Dir., Inst. de Productividad Universidad Tecnica del Estado
Ing. Salvador Lluch Soler	Mgr., Instituto Chileno de Acero (ICHA)
Ing. Arturo E. Yermoli	Director of COPANT Seminars Tech. Dir., Consultores Industriales Asociados, Buenos Aires, Argentina

#### 4.1 Santiago, Chile, U. S. Embassy

Mrs. Wyman and I arrived in Santiago after a record-breaking flight on the Lima-Santiago leg, and after clearing customs and immigration we found awaiting us representatives of the Embassy and also Ing. Arturo Yermoli, Director of Seminars for COPANT and Ing. Anibal Gomez who directs the iron and steel seminar for ILAFA.

After getting settled at the hotel, I then went to the Embassy to see Mr. Allen for the latest situation report, particularly with respect to appointments with people I wanted to meet, and to see about obtaining copies of some reports which Dr. McPherson wished to have.

With Mr. Allen I discussed the subject of obtaining a standards library with the assistance of AID, and also the role that AID might be able to play in increasing the effectiveness of INDETECNOR and hence its support and participation of COPANT activities. Quite fortunately, this happened to be the right place to discuss these subjects inasmuch as Mr. Allen was doing double-duty; his second vocation involving his acting as the industry officer for the local AID mission.

#### 4.2 Steel Seminar

After getting appointments started at the Embassy, and learning that Dr. Hoerning was ill at home, I then went to the ILAFA Headquarters and sat in on the steel seminar for the balance of the afternoon.

There were 13 men around the conference table, busily engaged in standards writing. This group represented 8 Latin American countries. See accompanying roster.

Due to illness, Ing. Aguirre Tupper, Secy. General of ILAFA, was not at the headquarters but promised he would come in the next day just to see me.

Participants in Steel I Seminar  
Santiago, Chile, April-May, 1963

Argentina	Ing. Jorge Walter Aldasoro	SOMISA
Brazil	Ing. Eurico Joao Laux Ing. Pedro Silva	V. Redonda V. Redonda
Colombia	Ing. Arturo Rangel Duque	Pazdel Rio
Chile	Ing. Hugo Brangier Ing. Gustavo Campos Rademacher Ing. Alvaro Gonzalez Ing. Carlos Sepulveda	CAP ILAFA INDETECNOR FAMAE
Mexico	Ing. Mario Ruiz Carranco Ing. Alfredo Gonzales Ballesteros Ing. Cesar H. Gracia	DGN Fundidora Hoj. y Lam.
Peru	Ing. Fernando Vera Rojas	SOGESA
Uruguay	Ing. Colestino Alvarez	Inst. Urug. Nor. Agra.
Venezuela	Ing. Julian Jatem Villa Ing. Fernando Aguirre Tupper Ing. Arturo E. Yermoli Ing. Anibal Gomez Mr. L. L. Wyman	CVG ILAFA COPANT ILAFA NBS-U.S.A.

#### 4.3 U. S. Comments on Proposed Standards

At this seminar session, I discussed with them the U.S. comment concerning the use of the word "recommend" in these specifications instead of the term "require". I soon learned from Ingrs. Yermoli and Gomez that this was in accordance with COPANT instructions - thus I reserved any further comment until I could talk this over privately with Ing. Gomez and Yermoli, and also with Aguirre T.

The three of us (Gomez, Yermoli, and Wyman) discussed this subject after "class" was over, and it was agreed that they would see Ing. Aguirre T. on this matter. They did, next day, and so did I; the result being that all were in complete agreement that these groups writing standards should wind up with the final document exactly as it was to be published and that I would immediately write ASA concerning this matter because it was a fundamental concept in standards-writing.

I did so.

Another point of considerable discussion made me feel right at home; namely, shall the title of the spec. refer to "zinc-coated" or to "galvanized" - just parallel to "corrosion-resistant" and "stainless". Unfortunately, the Spanish Dictionary couldn't give good definitions for either zinc-coated or galvanized.

I explained that we had been through these things in ASTM, where a generic term had become too indefinite, technically; and that we now used both terms, the generic in parenthesis, such as "---Zinc-Coated (Galvanized).

#### 4.4 Instituto Latin Americano del Fierro y el Acero

Ing. Aguirre T. surprised us by coming in especially to greet me and to present me with a new ILAFA Directory. We covered many areas in our brief talk, including the progress on ILAFA's 3-language glossary of steel terms now up to some 400 terms.

We tried to locate Dr. Hoerning, but to no avail, at his office. However, the office reached him at home and he phoned me.

Dr. Hoerning's (December) cataract operation in one eye was highly successful, and now he was to have treatment for the other eye, and had to be at the doctor's office at 1100 next morning.

He also told me of Sra. Hoerning's endless hours of work at the hospital where a recent operating room explosion had killed 6 M.D.'s and several others, and left many nurses, etc., in critical condition. The blow-up was attributed to an oxygen cylinder.

### Standard cylinder?

I later learned from Ing. Aguirre T. that the horrible part about this was that the blast was apparently concentrated below table height - and it really caught the victims from the waist down. This might suggest that the bottom of the tank let loose.

Ingrs. Yermoli and Gomez came in; so I left them to talk that point on standards, and checked back at the Embassy; then to the hotel to find that Sra. Hoerning had sent a marvelous package of milk chocolate tetrahedrons to Mrs. Wyman.

### 4.5 AID Mission Visit

Next day being a 'meetings day' at the Embassy, I arrived at opening time, and stayed but briefly to check appointments with Mr. Allen; then off to see Dr. Charles Martin at AID.

We discussed the standards library, and I found him to be in full accord in this matter, as he instructed his program officer. In respect to AID support to help INDETECNOR, he was also in accord with such a project as an assist to industry, and wanted my specific recommendations as to costs, duration, etc. I stated I would get and submit the information.

I later rushed a message to Dr. McPherson for detailed suggestion on the library; receiving the answer later in the week and passing it on via Mr. Allen in his capacity as AID Industry Officer.

### 4.6 Seminar Session

Then I went to 'class' and found quite a bit of consternation because of the presence of two tables of tolerances in an ASTM spec. they were using for reference; one table for sheet, and another table for strip.

I explained why this was, in U.S. mill practice, and then this brought on a lengthy discussion on my part concerning 'intent' in a specification - and that it may be there, without being so stated, because every one concerned with writing the spec. recognized it as a common factor unnecessary to even mention.

### 4.7 Instituto Latin Americano del Fierro y el Acero Activities

Later in the morning Ing. Aguirre T. arrived and I had a long conversation with him, during which I received a major amount of enlightenment.

1. ILAFA was continuing its work on the 3-language glossary of steel terms - product terms first.

2. Standards activity was beginning in Paraguay via the Engineering Society, under Sr. Zoila Rodas Ortiz.

3. Similar activity in Bolivia

4. Concerning the standards-writing item previously mentioned, he said he would completely agree; so I wrote to Mr. Ainsworth at ASA concerning this matter.

5. The steel seminar programs.

#### 4.8 Comision Economica para America Latina de las Naciones Unidas Visit

Later in the day I went out to CEPAL to keep my appointment with Dr. Leuschner, and collected a wealth of information - but not the reports Dr. McPherson wanted as they were out-of-print.

It seems that when a U.N. office such as this issues a report, only a limited number of mimeographed copies are sent out - mostly for comment. At a later date (about a year later) these reports are printed up nicely by, and sold via U.N. (N.Y.).

Dr. Leuschner has long been associated with U.N. activities in this area, and now, although retired, is acting part-time as a consultant on some 11 U.N. research projects going on in Chilean universities. He commented at some length on these.

I did obtain several reports, and also information on standards activities in Paraguay and Bolivia, as well as references to people I should see in these countries in connection with standards activities.

Dr. Leuschner emphasized the need for standards of quality for food, and most especially for canned food, in all Latin America. He also stated that standards and codes for building construction are sorely needed in most of Latin America.

#### 4.9 Hoerning Visit

Dr. Hoerning, under his doctors orders, was to be resting at home; however, this took the form of inviting the Wymans to the Hoerning home for tea.

We spent several very enjoyable hours there, and learned that Dr. Hoerning was to be operated on for detached retina on Saturday morning, and that he would be kept immobile for about two weeks after

that. Following this there would be some three months of recuperation before he could take up normal activities. As a consequence, he was tidying up all loose ends in preparation for this absence.

#### 4.10 Ryberg Visit

In the evening, Mr. Ryberg (INCO, Buenos Aires) returned from Antofagasta with Mr. Reed, his local INCO representative, and we had a very enjoyable visit. From this I learned from Mr. Ryberg that activities in promoting a simplified line of low-alloy steels was progressing satisfactorily, and there would be a meeting on this in Buenos Aires very shortly.

Mr. Reed brought up the subject of "Suppliers Certificates" about which I knew nothing. He cited the tremendous amount of paper work that was required, and considered it an imposition that many suppliers could not afford.

From this, as well as other sources, I gained the distinct impression that this requirement was having an adverse affect on our relations with the business people in Chile.

#### 4.11 Chilean Steel Institute

Through the good offices of Ing. Aguirre T., I met and had a highly instructive visit with Ing. Salvador Lluch Soler, Manager of the Chilean Steel Institute (ICHA). The major portion of this discussion was devoted to standards, and what was needed to effectuate an adequate standards body; this most obviously being an item of prime concern in Chilean industrial circles at this time.

#### 4.12 Instituto Nacional de Investigaciones Tecnologicas y Normalizacion Visit

On Thursday I took time out from the seminar activities to visit Ing. Krumm at INDETECNOR headquarters. He will be in charge during Dr. Hoerning's absence.

I advised him of the impending visit of Drs. Kanagy and Naghski in connection with leather standards.

From him I learned that a 'prominent French expert' on concrete had recently visited Santiago and held a conference, and that there may be a 'concrete institute' established in Chile - similar to the one in Argentina.

#### 4.13 "Graduation"

On Thursday evening, Ing. Aguirre T. and his charming wife hosted a dinner party at the Union Club for the "graduates" of the steel seminar. At this party Mr. Ryberg and the Wymans were honor guests.

This was an excellent affair with the bare minimum of speeches, thus providing a fitting finale to the seminar.

The representatives attending this seminar are certainly a fine group of men; they have learned how to work together to best advantage; and it is a joy to be working with them.

#### 4.14 Instituto Latinoamericano del Fierro y el Acero

Friday was clean-up day at the seminar; some of the men having already departed.

In order to enhance our relations in the standards and commercial areas, Mr. Allen, Ing. Aguirre T., and I had luncheon at the Union Club so that these gentlemen could meet each other personally, inasmuch as future standards work would call for their close collaboration. This was a great success.

One of the highlights of this luncheon was the discovery of the fact that Mr. Allen in writing a survey of the steel industry in Chile and Ing. Aguirre T. in studying the industry in Latin America had both come to the same conclusion: This, in brief, is to the effect that the steel companies in most of these countries can have but a limited growth in their own national market, thus their growth to where they are capable of producing more than just the most simple products is dependent on a much wider market - this, in turn, pointing up to the desirability of integrating neighboring countries into a cooperative market, even within the Latin American Free Market.

In the afternoon I had a long talk with Ings. Gomez and Yermoli, and again with Ing. Aguirre T.

With the programming of the third steel seminar to be devoted to pipe and tube specifications, it was considered particularly desirable that I be in attendance at that session.

The present ILAFA 3-language glossary is completely out of print. However, as soon as the expanded version is available, a copy will be sent to me.

#### 4.15 Integrated Production

During the Friday afternoon wind-up of the seminar, I had an interesting discussion with Ing. Yermoli on the ever-present English vs. metric problem. In this he made a quite significant point to the effect that if there was a wide range of sizes available for various end-products in steel, for example, then the engineer would have the opportunity of selecting a size which was much closer to his design requirements than would usually be the case where size schedules had rather wide intervals. This would result in more effective and economical use of material.

On the other hand, one must consider the economy of the whole steel-mill operation, and the stocking of a wide range of sizes could easily lead to large stocks of many sizes and low sales in each size - which could bankrupt small mill operations.

Of course, one answer to this side of the problem could be to have a greater market which could be accomplished by integrating the needs of several neighboring countries; this thought already having been pursued by others.

While the preceding discussion was instigated by considerations of dimensions, the same logic applies to steel compositions. For example, only a few of the Latin American countries have an appreciable need for low-alloy structural steels for automotive applications, and the different compositions can be reduced to a minimum as Ryberg has proposed. This also varies the question of whether any one of these countries needs enough of these steels to warrant Latin American production.

Maybe not; but by integrating production among neighboring nations, an adequate market might be created.

## 5. Buenos Aires, Argentina, May 18-21, 1963

Dr. F. W. Brown	Scientific Attache
Mr. John Troy	Commercial Attache
Mr. James Theberge	AID Mission
Sra. Ing. Beatriz Ghirelli de Ciaburri	Prov. Secy., COPANT Mg. Dir., Instituto Argentina de Racionalizacion de Materiales (IRAM)
Sra. Dr. Hughes	IRAM Staff
Dr. Salvador del Carrill	Pres., Instituto Nacional de Tecnologia Industrial (INTI)
Dr. Carlos A. Abledo	President, IRAM
Ing. Antonio Aguirre	Director, IRAM Mgr., A.P. Green Fire Brick Co.
Mr. Donald A. Ryberg	B. A. Rep., International Nickel Company (INCO)
Ing. Arturo E. Yermoli	Director of COPANT Seminars Tech. Dir., Consultores Industriales Asociados, Buenos Aires, Argentina

## 5.1 Buenos Aires, May 18-21, 1963

Mr. Ryberg returned home to Buenos Aires one day ahead of our arrival there, and we spent some time together over the week-end discussing steel requirements and standards.

## 5.2 U. S. Embassy

First thing on Monday I went to the Embassy at its new location on Av. Sarmiento and visited with Mr. Troy. He was quite enthusiastic over the suggestion of a "standards library"; not only because of its utility, but he said that it would also have a great publicity value for us to make this technical information available.

After talking with Mr. Troy, I then visited Dr. F. W. Brown, on leave from NBS as Scientific Attache at the Embassy.

I explained our thoughts concerning the standards library, and also assistance to standards groups; he agreeing to join me in the forthcoming meeting with Mr. Theberge. However, due to a switch in appointments while I was away from the Embassy, I wound up alone with Mr. Theberge.

We discussed both the acquisition of the standards and also the subject of assistance to the standards bodies where such help was needed. In this case I made it clear that the Argentine body, IRAM, appeared to be operating quite effectively and had good support, whereas similar bodies in other countries were in dire circumstances - and several countries had yet to organize such bodies.

As I left it, Messrs. Troy and Theberge would follow up on the standards library acquisition.

## 5.3 Visit with Dr. Brown

I later went back for a visit with Dr. Brown, and our conversation centered around a report that he had just written concerning Government Research in Argentina. In this report he brings out several points which do have some connection with standards, i.e., that (a) there is little cooperation between government laboratories, industry and universities; (b) university scientists and engineers are almost completely unfamiliar with the problems of industry; and (c) these people are not really motivated to undertake applied research problems. He also points out that government-backed institutes, such as INTA and INTI (a strong supporter of IRAM) have a difficult time in getting good men, and that Argentine industry needs a lot of educating with respect to research.

## 5.4 Instituto Argentina de Racionalizacion de Materiales Visit

Following my initial visit with Mr. Troy, I went to IRAM to see Sra. Ing. Ciaburri. Here I was met by Sra. Dr. Hughes and we discussed

standards activities until Sra. Ciaburri's arrival.

At this meeting I first related the news concerning the just-ended steel seminar in Santiago, Hoerning's illness, Ainsworth's serious illness, and standards activities in Chile.

In discussing COPANT activities, I pointed out the desirability of having the Council meeting in Santiago, as planned at Lima, because Chilean industry was most anxious to have this meeting. I recognized the fact that Sra. Ciaburri already had some insight into the Chilean situation, and finally she seemed to agree on the desirability of such a move.

Concerning support for the member bodies of COPANT, I was much interested in Sra. Ciaburri's concept that there should be a central fund available to the COPANT Secretariat for use in bolstering the activities of the less-well-supported member bodies. She said that she intended to write up such a proposal and would send me a copy.

The low-alloy steel meeting was scheduled for the next evening, and I was invited to attend if at all possible. Ryberg had already advised me to this effect.

Due to the shortness of my stay in Buenos Aires, I suggested to Sra. Ciaburri that a group of the standards people might get together at tea, so with her assistance I endeavored to contact Srs. Ryberg, Aguirre, Abeldo, del Carrill and Palacios and invite them to be present.

It was now time for the appointment with Mr. Theberge, so I rushed to the Embassy for this meeting (See 5.2), then back to the hotel to arrange for the tea.

This was a very pleasant affair with the Wymans, Ing. and Sra. Antonio Aguirre, Dr. Abeldo, Dr. del Carrill and Ing. Ryberg present. Sra. Ciaburri sent word that a family problem had called her home and Sr. Palacios was still "out" of his office.

Not only was this affair quite enjoyable, but it was most informative, and resulted in being a big time-saver for me.

During the course of the day I had also been told of the visit and meetings held by the French cement expert, and that he had also been to Chile (as I already knew).

#### 5.5 Visit with Ing. Yermoli

On Tuesday morning I met with Ing. Yermoli at his office, and we reviewed all of the forthcoming COPANT seminars so that I would have the latest information for my forthcoming travels and for the folks back home.

Ing. Yermoli thought that the Steel II seminar (Aug. 11-31), to conclude the drafts from the seminar just concluded, might be accomplished in two weeks instead of three. However, the third steel seminar (Oct. 6-26), on pipe and tube, would be the area in which help was most needed, and he most particularly wanted me to be there to help them.

He also outlined the Lima seminar on textiles (Sept. 1- Oct. 5); five weeks, the first two being on filaments and yarns, the balance on fabrics.

The building construction seminars (July 28-Aug. 14 and Oct. 13-Nov. 9) would begin with cement, then aggregates, and on to concrete. This program is to be held in Rio de Janeiro, under the directorship of Dr. Mario Brandi Pereira, former Professor of Soil Mechanics. Ing. Yermoli is doing a fine job on these seminars.

Due to the fact that the consulting firm with which Ing. Yermoli is associated has had assignments in Paraguay and Bolivia, I was given some sidelights on standards movements in these places, and also a few contacts to make.

#### 5.6 Instituto Nacional de Tecnologia Industrial Visit

My next visit was to INTI and its Director, Dr. del Carrill, where I found him engrossed in the problem of how to obtain adequate funding to adequately carry out their program of technical assistance to Argentine industry. The primary needs are for equipment and for technical assistance to properly organize their subsidiary laboratories and select and train personnel.

It seems that INTI now has some 19 small laboratories in Argentina which serve industry as service laboratories - particularly for small companies that cannot afford their own laboratory facilities for testing - primarily chemical and metallurgical. At present, over 80 small industrial companies are being served as best they can with limited equipment and personnel. What Dr. del Carrill needs is to have some of our NBS experts come down there to lay out adequate laboratories, programs, etc., and to help in the selection and training of personnel for these labs. Equipment and instrumentation are sorely lacking and he needs funds for "good U.S. equipment".

His estimate is to the extent of some \$600,000 over a 5-year period; the expenditures being heaviest during the first couple of years.

I advised him of the forthcoming visits of Drs. Kanagy-Naghski, and he wants very much to meet with them concerning Argentine leather interests. I left word of this at the Embassy.

## 5.7 Low-Alloy Steel

As a wind-up in Buenos Aires, I again met with Ing. Ryberg to discuss the low-alloy steel meeting, which I had been unable to attend as I was engaged with Srs. Abeldo and Aguirre.

The decision was to make a survey of all of these steels now being used; then to use these data in an approach to the steel industry in the interests of initiating the production of a simplified line of products.

I was mildly surprised that this was based on material now being used, and that no one had thought to also ask what they would use, if available!

Business in Buenos Aires was concluded in a most enjoyable manner, with the Wymans being the luncheon guests of Dr. and Sra. del Carrill at the Golf Club.

6. Montevideo, Uruguay, May 21-22, 1963

Miss Elizabeth Norma Landeau      Second Secretary, U. S. Embassy

Mr. Ralph H. Visbal                      Dir., AID Mission

Ing. Juan P. Molfino                      Director, Instituto Uruguay  
de Normas Tecnicas (UNIT)  
Treas., COPANT

Sra. Alba Cabrera                        Secy. to Ing. Molfino

### 6.1 Montevideo, Uruguay, U. S. Embassy

My first stop was at the Embassy to see Miss Landeau and discuss programs with her, and to find out that she is leaving Montevideo for another assignment.

### 6.2 AID Mission

She soon had an appointment for me at the AID headquarters, so I went there to discuss the standards library and standards assistance with Mr. Visbal. Here I found complete agreement, but no possible action at present because there was no Industry Division in this AID mission. However, they were expecting a man down from the States within a few weeks who was to start up such a division, and then such programs could be put into effect.

They would advise him of these programs on his arrival.

### 6.3 Instituto Uruguay de Normas Tecnicas Visit

On my return to the Embassy, I found that I was awaited at UNIT by Ing. Molfino, so I arrived there very shortly - it being next door.

After pleasant greetings and a few recollections of the Lima meeting, Ing. Molfino asked me to request ASA that it take over the Treasurer's job for COPANT; Sra. Cabrera acting as an excellent and understanding interpreter through much of our meeting.

I said that I would transmit this request, as I did.

He has fully recovered from his Santiago illness and is again active. The activity of UNIT is limited however, due to the extremely low ebb of their finances - lack of industry support - in a non-industrial country, that is. Truly, however, some of the contributions by U.S. firms operating there have been paltry.

Ing. Molfino also feels that the best way to insure the standards program is to have strong national standards bodies that could do their national work and, being strong, can also participate in COPANT. Thus, the strength must lie in the roots - the national bodies.

UNIT presently lacks the capability of adequately processing proposed standards for review - much less carrying on any standards-writing program (it is supposed to hold the Secretariat for Cement in COPANT). UNIT certainly needs help!

Concerning the Treasurer's job, one reason Ing. Molfino gave was that it hurt him to dun these other bodies for back dues - and it would hurt him even more to have to expel them in accordance with the '62 Council decisions at Lima.

After more than two hours of standards talk, I was forced to leave in order to enplane for Rio, and as I left, Ing. Molfino said he would expect me back as a delegate at the next council meeting.

## 7. Rio de Janeiro, Brazil, May 22-26, 1963

Mr. Edward Bash	Commercial Attache
Mr. Norman Bouton	Commercial Assistant
Mr. C. Hamerman	Asst. Industry Officer
Dr. Andre C. Simonpietre	Science Attache
Mr. Charles Nelson	Director's Staff, AID
Mr. Robert Mingens	Planning Officer, AID
Mr. Charles Shirley	Chief Engineer, AID
Dr. Paulo Sa	Director, Associacao Brasileiro de Normas Tecnicas (ABNT)
Ing. Luiz A. P. Pedroso	Asst. Director, ABNT

## 7.1 Rio de Janeiro, Brazil, May 22-26, 1963

Enroute to Rio from Montevideo, the first stop was at Porto Alegre, as expected. Quite unexpected was a shift-over to a Caravelle which flew us directly to Rio for an early arrival there, and thus causing us to miss Mr. Bouton of the Embassy who was awaiting our later arrival.

Unfortunately, we discovered at the Embassy early the next morning that this was a national "Church Holiday"; so here was the chance to do our banking, catch up on notes-writing, and make a few personal contacts. In this, I learned that Dr. Neves, President of COPANT, would not be back in Rio until June 12th.

### 7.1.1 U. S. Embassy

At the Embassy next morning it became necessary to try to do two-days work in one day. Thus, after briefly discussing standards with Mr. Bash and Mr. Bouton, I visited with Mr. Charles Nelson of AID concerning the standards library and assistance to the standards program. We also discussed these matters with Mr. Mingens, and finally with Mr. Shirley, finding all of them very favorably disposed toward these suggestions. Mr. Bash will collaborate with Mr. Shirley on getting the standards.

I could only spend a few minutes with Dr. Simonpietri because he had 4 NASA men descent on him - all in the same fix as I, to do two days work in one. However, I did have time enough to up-date him on my efforts.

### 7.1.2 Associacao Brasileiro de Normas Tecnicas Visit

The Embassy had arranged an appointment with Dr. Sa for 12:30, which I later learned was to be a luncheon with Dr. Sa and Ing. Pedroso. Unfortunately, just after I arrived at ABNT, the "Minister" called for Dr. Sa's immediate presence at the Ministry.

He lost no time in going.

This, of course, is in connection with a new office which Dr. Sa now holds, that of General Manager of the newly formed National Institute for Weights and Measures in the new organization of the Ministry of Commerce.

So, Ing. Pedroso and I had luncheon together, and many new factors came to light:

- (a) Dr. Sa, in his new position, must enforce the metric system - adopted 100 years ago!
- (b) Ing. Pedroso would still like to come to NBS to study the Weights and Measures program.

- (c) With Dr. Sa's new appointment, there is a closer rapport between ABNT and the government. In fact, any standard adopted by ABNT now, by law, becomes mandatory for government use.

This simple fact, when I called it to the attention of our Commercial and AID people at the Embassy, caused more than a bit of eye-opening.

- (d) The government has increased its support of ABNT.
- (e) Ing. Pedroso has another consulting job - in connection with a group of "independent" steel mills.
- (f) I was given a listing of ABNT specs. which pertain to steel - there now being 28 of these

I was also shown a pamphlet which outlined the various symposia that were being conducted by the Engineering Society, of which Ing. Pedroso is the Technical Vice-President. Most of these were in the construction area; however, during this next year there will be symposia on several phases of Metallurgy, and I was invited to deliver some speeches in this area. Pedroso will write me later on this.

After this most informative lunch, I rushed back to the Embassy to keep an appointment with Mr. Bash.

### 7.1.3 U. S. Embassy

Back with Mr. Bash, I discussed my visit with Ing. Pedroso, at which time Mr. Bash gave me a letter, forwarded from my office in Washington, which was from Mr. Bash's commercial man in Belo Horizonte - inquiring about steel standards.

This was a double coincidence because it also had a direct tie-in with my luncheon meeting (See 7.1.2-e). The net result was that I answered the letter in the light of our most recent information.

To wind up a really busy day, Mr. Hunnicutt phoned me from Sao Paulo, inquiring as to my arrival there, and stating that he and Mr. Jelinek had a tight schedule for me on Monday.

U. Sao Paulo, Brazil, May 26-28, 1963

Mr. Herman Jelinek	Commercial Attache
Mr. Desmond	
Mr. Horace A. Hunnicutt	International Nickel Company (INCO)
Dr. Francisco Maffei	Director, Instituto de Pesquisas Tecnologicas, Univ. de Sao Paulo
Dr. Luis Correa da Silva	Instituto de Pesquisas Tecnologicas, Univ. de Sao Paulo & Engineering University
Dr. Alberto A. Arrantes	Instituto de Pesquisas Tecnologicas Univ. de Sao Paulo
Eng. E. L. Berlinck	Eng. in Charge, Associacao Brasileiro de Normas Tecnicas (ABNT) Sao Paulo
Dr. A. Marchini	Exec. Secy., Associacio Brasileira de Metales (ABM)

8.1 Sao Paulo, Brazil, May 26-28, 1963

8.1.1 International Nickel Company - Mr. Hunnicutt

After flying over from Rio, we spent most of the rest of Sunday with Mr. Hunnicutt and his family, during which time we men covered most of the pertinent discussions we had in mind - including the Monday program and Mr. Marshall's (ASTM) call to Mr. Hunnicutt concerning translating facilities.

In my previous report (NBS 7793, 11.7) I commented on some of the new plants in Sao Paulo, including the ferro-nickel plant. Well, to show how developments down here can affect our economy, this ferro-nickel plant is now in operation and INCO has not sold a pound of material for steel-making since the first of the year!

Monday evening there is to be the opening session of an ABM training course in general foundry metallurgy. In this, Mr. Hunnicutt is scheduled as a professor in teaching nodular iron metallurgy.

8.1.2 U. S. Consulate

First thing Monday I met with Mr. Jelinek at the Consulate; and then together with Mr. Desmond, advising them of my visits in Rio, standards library, assistance, etc.

Mr. Jelinek was putting in the last touches before leaving for the U.S. on leave - so we firmed up the day's appointments; Mr. Hunnicutt arrived and he and I took off for IPT to meet Dr. Correa da Silva there.

8.1.3 Instituto de Pesquisas Tecnologicas Visit

At the Institute we were greeted by Professor Correa da Silva and also by Professor Arrantes and Dr. Francisco Maffei, the Director.

After discussing the recent Santiago steel seminar and my subsequent visits, I devoted some time to a favorite subject of theirs, Metallography; going over several of our recent NBS papers and the quantitative metallography by computer. I am afraid I talked myself right into the job of giving some lectures on this if I show up in this town again.

Mr. Hunnicutt discussed with them the problem of translating standards and, as he has already reported back to Mr. Marshall, they considered that this was much too big a job for them to handle.

Following a most enjoyable, typically Brazilian lucheon in the private dining room as the Director's guests, Mr. Hunnicutt and I joined Professor Correa da Silva in his office to discuss the Instituto Brazileria Siderurgica (IBS).

As previously reported, (NBS 7793), the formal organization meeting had been delayed, and was to be held the coming Friday evening - and I was invited to attend this function. However, Friday should find me in La Paz.

I was again assured that IBS would be happy to cooperate in the steel standards work of COPANT.

#### 8.1.4 Associacao Brasileiro de Normas Tecnicas Visit

After leaving the Institute, we then went to see Dr. Berlinck, who is in charge of the Sao Paulo office of ABNT. Here I was warmly greeted and well thanked for my last trip report which Dr. Berlinck had found to be "very useful".

ABNT has accepted the Secretariat for COPANT for automotive materials, and these will be handled by the Sao Paulo branch - operating under specific instructions from Dr. Sa from Rio.

The problem of handling such a wide variety of materials for one industry is quite new to these people, and has them in a quandary. As a consequence, I spent quite some time with Dr. Berlinck discussing the kind of set-up they would need to get a number of committees cooperating in this program. He already has a steel group and a textile group that he can set to work on automotive materials.

With reference to this problem, Dr. Berlinck had been trying to contact General Soarez at Mercedes-Benz, only to find that they were closed down. Similarly, we had been trying to contact the same gentleman - same result. Finally, however, we were able to make an appointment to meet him immediately prior to the ABM meeting that night.

In connection with automotive steels, I advised Dr. Berlinck concerning the low-alloy meeting in Buenos Aires and of the ILAFA activities.

#### 8.1.5 Associacio Brasileira de Metales Visit

Here again, I was happily greeted by Dr. Marchini and offered sincere thanks for my trip report.

At present, the principal topic was the foundry training course which would have its first session that evening; starting off with a lecture on the Brazilian foundry industry by General Soarez.

ABM has carried on these training courses for a number of years and has gone to the extent of "importing" foreign experts. For example, they conducted seven of these seminars last year, on different subjects, and had engaged French technical men for 3 of the 7! Expense has had to be the deciding factor.

In these seminars, it has been found that the drop-out is quite low. In fact, a number of these seminars have wound up with 80% of the original registrants still active. If this maintenance gets down to 65%, it is considered to be bad.

The seminar opening this evening is a most significant one for them in the sense that it is the very first seminar that they have been able to conduct entirely with Brazilian experts. Dr. Marchini was particularly happy to have Mr. Hunnicutt handle the ductile (nodular) iron sessions.

ABM is having money difficulties in its publications, and Dr. Marchini asked how we made out in the U.S. In fact, they had to forego the publication of some graduate theses that they thought were too much "personal advertising" in order to publish more important papers.

I told him that most of our technical societies were in a similar situation. In this connection I mentioned the use of registration fees at meetings; industry contributions to publications, and also "page charges" to authors. He said that these methods just would not be accepted in Brazil.

This discussion brought Dr. Marchini to another one - on which he is most emphatic - and this concerns U.S. publications. For example, he displayed many European (including Russian) standards, technical publications, trade magazines, etc., either at free or at greatly reduced rates. For ASTM Standards which they cannot afford to buy, he has relied on Mr. Hunnicutt's generosity in donating recently out-dated volumes to ABM.

He particularly deplores this use of out-dated books because these volumes find a lot of use in their seminar courses.

In several instances he pointed out the wide margin between "list" and "member" prices; they having to pay the former because they cannot afford to become members!

#### 8.1.6 Associacio Brasileira de Metales Cast Iron Seminar

After a hurried, half-eaten dinner, we were back at the Engrs. building and met briefly with General Soarez, who was most grateful for having received a copy of my trip report, and wanted to have a long visit next day. He again told me that the new steel institute (IBS) would be glad to cooperate with COPANT, and invited me to the organization meeting on Friday.

I was indeed sorry to have to tell him that my tight itinerary would not permit me to stay over, as I must go to Asuncion early next morning. So we had a rain-check on our meeting.

The General gave a most interesting lecture to a SRO crowd in the auditorium. I learned later that the registration for this course was up to the limit (240 = seating capacity) and that over 50 applications had to be rejected.

## 9. Asuncion, Paraguay, May 29-30, 1963

Ambassador Snow	U. S. Embassy
Mr. Benj. Moser	Commercial Attache
Mr. A. J. Linstad	Director, East Coast Affairs, L.A. AID, Washington, D.C.
Mr. John P. Wiley	Director, AID Mission, Paraguay
Prof. Glen D. Fulcher	University of Nevada, Reno, Nevada
Ing. Zoilo Rodas Ortiz	President, Comm. on Standards, Engineers Society

## 9.1 Asuncion, Paraguay, May 29-30, 1963

### 9.1.1 U. S. Embassy

Due to aircraft engine trouble, for a starter, we arrived in Asuncion almost on our departure time. Then more aircraft trouble permitted us to stay most of a day.

However, on arrival at the hotel I contacted Mr. Moser, only to find that the Embassy is closed on Wednesday afternoons - and next day was Memorial Day. Nonetheless, Mr. Moser contacted Ing. Rodas and arranged a new appointment at my hotel - but couldn't get me an interpreter. He suggested I contact the hotel manager.

At the desk I met one of the hotel staff, Mr. Bennett, an Englishman, and arranged with him to help me.

### 9.1.2. Comite Paraguayan de Normas Tecnicas

The Comite Paraguayan de Normas Tecnicas (CPNT) of the Centro Paraguayo d Ingenieros has been trying to get a standards group established in Paraguay, but with small success due to the simple fact that there is but little industry in the country to support such an effort. The Engineers would like to get this activity going, and work via UPADI into COPANT.

Ing. Rodas informed me that the Paraguayan Government is processing a law to establish an organization for standards work\*. However, it appears that the preference is for a 'private', rather than a governmental organization. In essence, they would like to have financial support from the government, but not domination.

I agreed to have some standards literature as well as the U.N. report on Industrial Standardization sent to Ing. Rodas as soon as possible. This was done, and since then Ing. Rodas has requested further assistance in this standards work.

Ing. Rodas was very much interested in my comments concerning COPANT activities in textiles and hoped to have Paraguay represented at the next Lima meeting. He was also very much interested in the Kanagy-Naghski visit on hides and leather, and said that there was a branch of a U.S. company there (hides, etc.) that would help support a standards program.

\*Ing. Rodas informed me by letter (August 6, 1963) that this has been accomplished by Law 862 forming the National Institute of Technology and Standards - that will probably be set up very soon.

After about two hours, this meeting came to an abrupt end because of the necessity of our going immediately to the Argentine Embassy to get re-entry visas, because of more airplane trouble. At this Embassy, we found two people - Mr. Linstad, who was in the same mix-up as we, and one staff member. Fortunately, Mr. Linstad convinced him to grant the visas - if formal requests would come from our Embassy next day.

### 9.1.3 Moser Visit

The Mosers were having a party that evening at which most of the Embassy people I wanted to meet were expected. Mr. Moser invited the Wymans, and he suggested we men-folk could pre-empt a corner for a short talk. As a consequence, my talks concerning standards, assistance, etc., transpired under much better-than-usual conditions.

Ambassador Snow was most pleasant, and offered all possible help. Also, he would send a visa request to get the Wymans and Mr. Linstad off the hook.

Mr. Wiley and his staff who were present proved highly receptive to the standards program suggestions. However, as had others, they pointed out that but little industry support would be found in Paraguay because there was so little of it. Also, I gathered that this had also had no small affect on the AID program.

During visits to the airline office, I also met Professor Fulcher and his family. They had been in Paraguay for two years as part of the AID program, and were starting back home.

## 10. Buenos Aires, Argentina, May 30-31, 1963

Due to the transportation snarl, we are in the process of going from Asuncion to La Paz via Buenos Aires and Lima. Thus the need for the re-entry visas for Argentina and this lay-over in Buenos Aires with a 24-hour general strike on the way.

## 10.1 Instituto Argentina de Racionalizacion de Materiales

I called Sra. Ing. Ciaburri at IRAM and agreed to meet her there at 8:00 P.M. to apprise her of the results of my many visits since I had last talked with her. This was particularly to point as I knew that she had been corresponding concerning standards activities in Paraguay.

Because of the impending 24-hour general strike set for midnight, it took me nearly an hour to get a car to take me to IRAM, arriving at the stroke of eight, through deserted streets - but to no avail. No meeting! Then over an hour to finally get back to the hotel.

11. La Paz, Bolivia, June 2, 1963

The several airline difficulties had cost me the possible work days in La Paz, but the airlines still owed me the La Paz trip. As a consequence, we took it as a turn-around flight on Sunday, hoping to make some contacts during the lay-over.

The lone public phone was pre-empted; so I told my woes to Pan-Am. co-pilot (U.S.) who soon had me fixed up in the communications office. I talked to the Marine at the Embassy and asked him to get Mr. Gibson, Commercial Attache to call me back.

Returning to the lobby, I discovered that Mrs. Wyman had found the Nelsons - he is from the Embassy - and they knew that Mr. Gibson was expecting us. So I went over my story for Mrs. Nelson's benefit (he was off to Washington) and she would see Mr. Gibson if he didn't call.

He didn't; she did, as later correspondence from La Paz revealed.

In fact, this was in the form of a request for help in their standards effort, and came to my office from Ing. Miquel Tejada Velasco, President, Bolivian Technological Institute, who had been in contact with Mr. Henderson of our Embassy concerning my visit.

Evidently, I had missed several pending meetings, and Ing. Tejada requested assistance, preferably in person, to help them solve their problems.

## 12. Lima, Peru, May 31-June 6, 1963

Mr. Frank A. Mau	Second Secretary
Mr. Robert W. Ross	Commercial Attache
Sra. Raquel Chocano-Bryce	Secretary
Mr. James H. Bowen	Deputy Director, AID Mission
Mr. Richard Kaynor	Ind. Officer, AID Mission
Mr. Wilson Harwood	Stanford Research Institute
Dr. Lichtner	Stanford Research Institute
Prof. Juan Vincente Cabrerizo	Director, Instituto Nacional de Normas Tecnicas Industriales y Certification (INANTIC)
Sra. Susana de Carrillo	Chemist, INANTIC
Dr. Enrique Monge Gordillo	Professor of Metallurgy, National Energy University Dir., Iron and Steel Institute
Mr. Hans-Otto Seeger	President, Ferrum Peru, S.A.
Mr. Kurt B. Pellny	Ferrum Peru, S.A.
Sr. Santiago Gerkolini	President, Society of National Industries

12.1 Lima, Peru, May 31-June 6, 1963

12.1.1 U. S. Embassy

Having arrived one day early, I contacted Mr. Mau to let him know that we had arrived, and intended the round-trip to La Paz on the morrow to try to make a few contacts. I inquired about visa difficulties, and he thought not - but call him if there was trouble.

After the Sunday trip to La Paz, then early at the Embassy on Monday to brief Mr. Mau, followed by a visit to Mr. Bowen, I found a keen sense of appreciation of standards, and Mr. Bowen soon had the industry officer, Mr. Kaynor, in on the discussion. Succinctly, we seem to be really in business with this Mission, and Mr. Kaynor will work with us.

12.1.2 Instituto Nacional de Normas Tecnicas Industriales y Certification Visit

I next went to INANTIC, and had a long visit with Professor Cabrerizo and Sra. Ing. Carrillo.

Practically all of Professor Cabrerizo's available time is devoted to the work on the textile standards, for which INANTIC holds the COPANT Secretariat. As a consequence, other activities must be left under the direction of Sra. Ing. Carrillo.

The textiles activities have placed heavy loads on INANTIC, leaving but little capacity for other activities that are becoming quite pressing. Additionally, industry support of this standards work has not been adequate, despite many efforts by Professor Cabrerizo.

In this connection, it might be well to point out that efforts via the technical committees in trying to get support for a standards program is seldom successful due to the fact that business executives, not technical people, control the purse strings.

INANTIC is doing a fine job in textile standards, so now comes the problem of helping this group in order that it can adequately serve in other areas.

Sra. Ing. Carrillo, in handling the iron and steel work, is currently in difficulty because of the ad valorem 150% tax on certain steel imports. The trouble lies in the fact that there are no standards for wire and wire-bar to define the product for tax purposes.

Well, this certainly is not the primary reason for specifications, but it serves well to illustrate where standards activities can be involved.

Both Sra. Carrillo and Professor Cabrerizo were insistent that I return in October to help them solve these problems. However, these specific needs were just the kinds of examples that would serve well to illustrate the importance of standards work; so it was not long after I left INANTIC that it was arranged that Mr. Mau, Mr. Kaynor, and I would meet with Professor Cabrerizo the next morning.

This was a very interesting meeting, and served well to demonstrate the need for, and the needs of the standards activity, and clearly revealed where INANTIC needed assistance for the benefit of Peruvian industry.

#### 12.1.3 Iron and Steel Institute

This institute is now "in business" and has its headquarters in the same building as INANTIC. The Director, Dr. Monge, is also the head of metallurgy at the University, and also heads up the recently-formed Peruvian Foundrymen's Society.

I was most interested in the programs that the iron and steel and the foundry groups have planned. Also, I am sure that these organizations will be staunch supporters of standards via Professor Monge. Also, there will be close collaboration with the university, and I was given no choice but to accede to his insistence that I lecture to each of these groups next time I came to Lima. Also, Professor Monge wants to obtain some equipment and conduct evening courses in metallurgy at the Institute headquarters.

I agreed to visit the University with Professor Monge the following morning.

#### 12.1.4 University Nacional de Ingenieria

Metallurgy, in the broad sense, is housed in one of the several nearly-completed buildings in the new campus area of the university. Here the students are doing double duty:- studying, and also building. They are helping to install some of the neglected or omitted services in the building, building benches and tables and setting up laboratory equipment, and hand polishing sections of ore specimens for microscopic examination.

Via Point Four, they have been able to collect quite a good array of equipment for an ore-dressing laboratory, and have most of it installed. This, by the way, is U.S. equipment.

From the lab-scale operation up to plant operation is not far - because there is a commercial concentrating plant on the hillside above the school.

They are completely lacking in metal melting and working facilities, although the space has been provided. Thus, here would be an ideal place to put some of our surplus equipment to excellent use.

#### 12.1.5 Ferrum Peru, S.A.

Last November, I had several meetings with Sr. Seeger, and this time I visited him briefly at the Ferrum plant in company with Professor Monge.

Ferrum has standards problems too. Currently, it has to do with pipe, wherein U.S. pipe is "heavy wall", and ISO specs, have both "heavy" and "light" walls. Ferrum stocks both; there are no Peruvian or COPANT specs for local buyers. Ferrum ships what they have on hand for the size ordered; then the customer rejects because he wants "the other wall thickness".

Ferrum has a fine, little plant, and I was very happy when Sr. Seeger invited Professor Monge to bring his **students** out there to study actual plant operations.

I am sure that Ferrum will be a staunch supporter of INANTIC steel activities.

#### 12.1.6 Society of National Industries

In line with my comments at previous meetings here (12.1.2) that the place to seek support for INANTIC was at the business executive level, Mr. Mau arranged a meeting with Sr. Santiago Gerkolini, who heads up this Society which has some 30 "industry committees" each in its particular line of business.

Mr. Mau, having explained the reason for our visit, found Sr. Gerkolini most willing to help, and a good part of the reason therefore can probably be credited to the fact that, being "in textiles", Sr. Gerkolini knew Professor Cabrerizo and the excellent work INANTIC was doing in that area. As a consequence of this meeting, I found that they had arranged that Sr. Gerkolini would call meetings of these top business people and that I (or other) would address them (Sept. or Oct.) on standards and standards significance to them. These lectures are to be pre-translated into Spanish for their greater utility. Mr. Mau later confirmed this by letter to Dr. McPherson at NBS.

#### 12.1.7 Stanford Research Institute Survey

On a visit to Mr. Kaynor's office, I met Messrs. Harwood and Lichtner, who were the fore-runners of a team from Stanford Research Institute that will make a study of Peruvian industry (mostly in the south) as a guide for AID assistance. This is a 5-year program and will involve about a dozen men in all.

### 12.1.8 Luncheon

In order to facilitate the cooperation of our efforts, the needs of INANTIC, and the possibility AID support, Mr. Mau arranged a luncheon meeting so that all of the interested parties could meet together before I had to leave. Here we had Mr. Mau of the Embassy, Professor Cabrerizo and Sra. Ing. Carrillo of INANTIC, Mr. Kaynor of AID, Messrs. Harwood and Lichtner of SRI, and the Wymans.

We had some excellent discussions of the aims, problems, and needs; and I am sure that this round-table discussion will prove to be quite helpful to INANTIC and to the standards program as an assist to Peruvian industry.

### 12.2 Miscellaneous

#### 12.2.1 Leather Standards

On my first visit to INANTIC, there was a committee working on leather standards in session, and I was told that there was much need for these in Peru.

This, of course, is just the thing for the forthcoming visit of Drs. Kanagy and Naghski; so I made sure of these contacts.

The local AID mission had already had a survey of this industry made by Dr. Best, and his report was available.

#### 12.2.2 Cement

There is appreciable interest in cement, but not to the extent that there would be collaboration such as that reported in connection with Argentina and Chile. On the other hand, it is quite probable that Peru will be represented at the Rio meetings on cement, etc., a few months hence.

## 13. Guayaquil, Ecuador, June 6-8, 1963

Mr. Alton Hamba	Consul General
Miss Audilia V. High	Commercial Attache
Mr. James McGuiness	Pres., La Cemento Nacional
Ing. Martin Ycaza Perez	Pres. and Chief Eng. Compania Tecnica de Construcciones, S.A. Vice-President, Sociedad de Eng. and Arch. de Guayaquil
Ing. Eudoro Cevallos de la Jara	Compania Tecnia de Construcciones, S.A.
Ing. Anibal Santos Velasco	Vice-President and Mgr. Operations Empressa Electrica de Ecuador, S.A. President, Sociedad de Eng. and Arch. de Guayaquil
Ing. Alvaro Tinajero	Empressa Electrica de Ecuador, S.A.
Ing. Agustin Ferrero	Empressa Electrica de Ecuador, S.A.
Mr. Morris C. Anderson	Colegio Tecnico Simon Bolivar

## 13.1 Guayaquil, Ecuador, June 6-8, 1963

## 13.1.1 U. S. Consulate

Since my last visit in Guayaquil, we have a new commercial officer, Miss High, who was awaiting us at the airport and also had an appointment immediately awaiting me, and others to follow. So, with a charming reception and a set program, we checked in at the hotel, then I went out to visit Mr. McGuinness.

## 13.1.2 La Cemento Nacional

Last visit I met with Mr. Peter Stevens of this long-established company, and now had the opportunity of discussing standards with Mr. McGuinness.

He was very much interested in hearing of the forthcoming seminars in Rio, and would cooperate with the Engineering Society so that Ecuador had a representative at the meeting.

La Cemento Nacional is one of two large cement plants in Ecuador that are in operation. There is a third one being constructed. However, from the various comments I received in Guayaquil and in Quito, there seems to be some doubt as to the completion and operation of this third plant.

Mr. McGuinness is very much interested in standards for cement, aggregates, concrete, etc., and will help such a program. However, some of his comments are very much to a highly significant factor; namely, that the really important part of the program is not establishing these things - but enforcing them.

He cites the fact that Ecuador has much better codes for protecting the safety of workmen than does the U.S. - but no one enforces the code. And the same way with other codes.

## 13.1.3 Compania Tecnica de Construcciones

Here I renewed acquaintance with Ing. Ycaza, and also met Ing. Cevallos, another Past-President of the Engrs. Society.

I advised them of the forthcoming construction seminars in Rio which would start in on cement, and again met with much interest and strong desire that Ecuador be represented there. They tried to locate the current president of the Eng. Society to bring him in on these discussions, but to no avail as he was out of town.

The move of the national office of the Societies to Guayaquil had been delayed, thus there had not been any concerted activity toward the standards program - as I would learn in more detail from Ing. Santos.

Here again I met with the need for help in educating the business people in the significance of standards. They wanted me to address a group of these people that they would assemble. Unfortunately, my short visit would not allow enough time. However, I did not get away without promising to do this on my next visit. If---

#### 13.1.4 Empresa Electrica

From Ing. Santos I learned that the transfer of the National Office of the five Societies of Engrs. and Architects to Guayaquil would be delayed until July, and that the "Congress" which was usually held at the time of this transfer would not be held until a month or two after the transfer.

Ing. Santos is most anxious to have several papers concerning standards presented at this Congress. Also, if I am available, he would like to have me present a paper on this program. In their own field, he called in Ing. Tinajero who was in the process of preparing a standards paper for this Congress.

Later, I spent some time with Ing. Tinajero and Ing. Ferrero in discussing various points which might well be emphasized in these standards papers for the Congress.

Also, I learned that Empresa Electrica is very much involved in construction work, and that these jobs must be done right. Thus, it was quite likely that they would want to have a man at the Rio meetings.

#### 13.1.5 Simon Bolivar College

This organization is primarily a vocational school which now has about 450 boys of from 12 to 19 years of age. The activities cover auto mechanics, electrical repair, carpentry, welding, etc. The enrollment may go as high as 800 in another year.

The training is quite like some of the "test course" programs in the U.S., as I learned from Mr. Anderson. In this, the "new" boys spend several months in each department; then, after they have gone the rounds, they may choose (or are assigned) to one particular line of work to which they will then devote all of their time until graduation several years later.

These boys are doing excellent work, and while Point Four has provided a fair amount of equipment, much more is needed, and an added wing is needed to house the auto mechanics work so that they can actually work on cars.

Of added interest was the fact that my taxi owner-driver was an early graduate of this school and was well known to the staff.

14. Quito, Ecuador, June 8-12, 1963

Mr. William Miller	U.S. Embassy, Commercial Attache
Mrs. Helen Wulf	Commercial Assistant
Mr. Hollander	Deputy Director, AID Mission
Sr. Humberto Esteve	Funcionario Asesor de AID Centro de Desarrollo (CENDES)
Mr. Donald Alder	Assistant Asesor, CENDES
Ing. Perez	Chief Engineer, CENDES
Dr. Morris Mountain	Dept. of Defense, Washington, D.C.
Ing. Luis Homero de la Torre	Pres., Soc. Eng. and Arch. de Quito Prof., Materials - University of Quito
Ing. Gustaro Moncayo Calderon	Vice-President, Soc. Eng. and Arch. Prof., Materials, Army 'War' College
Ing. Walter Seligman	Prop., Siderurgica Ecuatoriana

#### 14.1 Quito, Ecuador, June 8-12, 1963

##### 14.1.1 U. S. Embassy

As a week-end suggestion, Mr. Miller had advised me concerning the visit of Dr. Mountain in Quito, and that there would be a side-trip to the equator on Sunday.

The Wymans were invited to go along, and we had a very enjoyable trip, including our learning that the equator was more than just an imaginary line. In fact, the "Professor" who runs the museum has the equator line in evidence, crossing the top of the museum and windowed so that the sun can cast the shadow on the floor at high noon.

Well worth seeing.

At the Embassy early Monday, Mr. Miller and Mrs. Wulf had a tentative program for me which was soon firmed up, and I was off on a round of visits.

##### 14.1.2 AID Visit

I discussed the standards library and standards assistance with Mr. Miller, and he soon had us an appointment with Mr. Hollander. With him we soon found out that we had full cooperation; that they would get the library, and then Mr. Hollander arranged for me to meet with Sr. Esteve the next day to brief them on the standards activities, technical assistance, commercial aspects, etc., and also point out where and how CENDES could best help.

CENDES, as I learned, is an organization composed of AID, Ecuadorian government representatives, and industry representatives; the purpose being for the development of the country.

##### 14.1.3 Engineering Society

Mrs. Wulf had arranged successive appointments with Ingrs. Moncayo and de la Torre, the first at Ing. Moncayo's home where he was incapacitated with a broken ankle.

Not long after my arrival, Ing. de la Torre joined us, thus a much more satisfactory meeting was held.

Ing. Moncayo is Vice-President of the Society in Quito, and is Chairman of their Committee on Science and Technology which they will use to carry on the standards work. In this, they quite agreed with me that "Normas Tecnicas" (Standards) should be in the committee's title - or a Committee on Standards should be formed. The committee is to meet next Wednesday to get going.

It was agreed that Ing. de la Torre would be the spokesman for the Society in respect to this standards effort, and that they would immediately contact the Guayaquil group so that they could join into a concerted effort.

In addition, the engineers would also contact their equivalent of our Chamber of Commerce, and also enlist the support of the special Camaras such as construction, etc.

#### 14.1.4 U. S. Embassy

The next morning I met with Mr. Miller and recounted my day's visits. I also heard from him the same story about the third cement plant. He also told me of some new metals - using industries; a bus-body fabricative plant, and a domestic refrigerator plant which was backed by Ecuadorian and Colombian money.

#### 14.1.5 Siderurgica Ecuatoriana

I stopped in to visit with Sr. Seligman and found him anxious to know what went on with the standards effort. He wants copies of all COPANT iron and steel standards, and stated that either he or a representative of Siderurgica would take an active part in the standards program, and that he will work with Ingrs. de la Torre and Moncayo right away.

Sr. Seligman has "interests" in the bus-body plant. He also emphasized the fact that one of the greatest needs in Ecuador is a uniform system of Weights and Measures.

Of added interest to me was his comment that he hoped that the use of the metric system would get rid of the 6 or 7 "gage" systems now in use. This was remindful of a write-up I had recently made, pointing out this potentiality.

#### 14.1.6 Centro de Desarrollo

I arrived at CENDES a bit ahead of Sr. Esteve, and had a brief talk with Ing. Perez, wherein I found that there was a so-called "Institute Program" as part of the AID help. This calls for an organization capable of testing, etc., and includes the organization of a standards body.

An added comment might be well at this point - to the effect that after returning from this trip I received a copy of this Institute proposal from Ing. Galo H. Montano, Executive Director of CENDES, who asked me to review it and comment for their benefit.

With the arrival of Srs. Esteve and Alder, I went over the whole standards picture and brought up to the minute the results of my visits.

This group was quite in agreement with my suggestion that we first encourage and assist the Engrg. Societies to get industry support to start the standards movement - with CENDES being ready to assist. Also, I told them that Ing. de la Torre would act as the spokesman for the Engrs. and that this would probably include the Guayaquil group - and later the other three.

As I left the situation in Quito, as soon as the Engrs. and industry got together on the standards program, Ing. de la Torre would contact Sr. Esteve at CENDES.

## 15. Bogota, Colombia, June 12-15, 1963

Mr. Geo. Albert Ellsworth	Commercial Attache
Sr. Enrico Rosales	Commercial Officer
Mr. Charles Fossum	Director, AID Mission
Mr. Theo. Markow	Asesor Industrial, AID
Dr. Oliverio Phillips	Director, Instituto de Investigaciones Tecnologicas (INIT)
Dr. Norton Young	Assistant Director, INIT
Ing. Fernando Ospina H.	Pres., Asociacion Colombiana de Ingenieros Electricistas y Mecanicos Ferrotec, Ltd.
Dr. Victorino Zuccardi	Jefe, Sec. de Normas y Calidades, Min. de Fomento Secy., Consejo Nacional de Normas
Sr. Anibal Vallejo Alvarez	Minister, Ministro de Fomento
Sr. Carlos Jiminez Gomez	Gen. Secy., Ministro de Fomento
Sr. Rafael Gil	Chief, Foreign Investments, Ministro de Fomento

## 15.1 Bogota, Colombia, June 12-15, 1963

### 15.1.1 U. S. Embassy

After check-in at the hotel, I went to the Embassy finding that Mr. Ellsworth had not yet returned from a business luncheon; but meeting his assistant Sr. Rosales who was firming up appointments for me.

Mr. Ellsworth soon returned and I briefed him on my interests, whereupon he tried to contact Mr. Fossum, but found him fully engaged with a group of bankers. However, inasmuch as the morrow was a church holiday, and Ellsworth would work even though the Embassy would be closed, Mr. Fossum agreed to meet with us in Ellsworth's office in the morning.

In the meanwhile, I met Mr. John Hay of the U.N. Mission, who had stopped in to gather some standards information - which we gave him. They had written NBS to get some of this information - so now they had it.

### 15.1.2 AID Mission

In meeting with Mr. Fossum, I found him to be most interested and cooperative regarding the standards library and in assisting the standards program.

With reference to the latter, he arranged that I meet with Mr. Markow early the following morning before he (Mr. Markow) had to leave town on a business trip.

At this meeting, as soon as I mentioned the standards program, Mr. Markow asked me to read a proposal he had written up in December. Well, it was like I would have proposed - so we were on common ground. However, because he wanted specific recommendations right away, and we would not meet again this trip, I agreed to summarize my visit and leave it for him.

That took a couple of hours writing on my last night in Bogota.

### 15.1.3 Instituto de Investigaciones Tecnologicas

Inasmuch as I had found on my last visit to Bogota that Dr. Phillips and I were then geographically transposed, I wanted to visit him as my first stop on this trip.

Arriving at INIT, I had a brief visit with Dr. Young, reviewing contacts from my last trip, then going into a twosome with Dr. Phillips.

At this meeting and subsequent delightful luncheon, I learned of many facets of the standards movement in Colombia. Significant among these was the fact that Dr. Phillips and several others had requested

that they be unappointed from the Consejo Nacional de Normas (See NBS 7793, 19.1).

The new "private" standards group (INCONTEC) is well under way, and can begin operations just as soon as their articles of incorporation have cleared. This was being rushed, but would still have to out-wait the statutory "publishing" period.

#### 15.1.4 Instituto Colombiano de Normas Tecnicas

Ing. Ospina met me at the Embassy and soon brought me up to date on the organization. Pertinent to this were:

The President of the Board of Directors of INCONTEC was Ing. Alberto Cambariza of the Paz del Rio steel plant. We tried unsuccessfully, to contact him to join us, as had Dr. Phillips while I was at INIT.

They have additional industry support. In fact, their presently assured funding will carry through the first year of operation.

They are still awaiting word as to what the Consejo is going to do - and Ing. Ospina wants me to visit them. This being fine, because that is my next stop on the itinerary!

I arranged that Ing. Ospina and I would meet at the hotel after I had concluded my Consejo visit - so he would know the latest score.

Ing. Ospina is an ardent gun enthusiast, an NRA Life-Member, and will be up in the states to compete in the Camp Perry competitions. He is hopeful of being able to visit us at NBS while on this trip.

With reference to some of the proposed activities of INCONTEC with respect to the Consejo, one plan was to have INCONTEC designated to establish standards, then the Consejo would confine its activities to only those standards which the government would officially adopt and make mandatory for its own uses. Weights and Measures would fall in this category, as would drugs, foods, etc., as they involve the public welfare and require enforcement.

#### 15.1.5 Ministry of Development Visit (Council on Standards)

Shortly after reviewing acquaintance with Dr. Zuccardi at the Consejo office at the Ministry, I learned that we had an appointment to see the General Secretary (the Minister's assistant) as the Minister was out of town. This was in connection with the pending decision of the Minister in designating INCONTEC as the standards-writing body.

Mr. Gil was impressed as the interpreter, and we had a very long and interesting discussion with the General Secretary. Toward the end,

I was asked my opinion in this matter; and I replied that both past experience world-wide - and most certainly in the opinion of industry - the "private" or "independent" standards body was the best. This was also substantiated by U.N. report and by principle adopted by COPANT.

Upon closing this session, I was given assurance that the decision would be forthcoming the following week. Thus I requested that Mr. Ellsworth be informed so that he could immediately advise me.

Following this meeting, I had a session with Ing. Ospina to advise him of what took place at the Ministry, and I asked that he relay this to the INCONTEC President and to Dr. Phillips.

After this, I settled down to several hours of writing to cover all of these points for the information of Messrs. Ellsworth, Fossum, and Markow, as well as in letters to my contacts in both Engrg. groups.

A few hours sleep, then off for home.

## 16. Standards: Broad Significance

The comments made in the previous trip report (see NBS 7793, 20) still hold. However, there is too little appreciation of this subject at executive business levels in Latin America.

This is a situation wherein these countries need our assistance.

### 16.1 Standards Promotion

In amplifying the comments of the previous trip report, as the result of this second visit to Latin American countries, it is increasingly evident that these national standards groups are becoming more keenly aware of the fact that they must have an active campaign to indoctrinate the top business people who control the purse-strings as to the significance of standards - from the national economy level right down to their own product lines and production costs.

### 16.2 Standards Assistance

Within the four areas of standards assistance noted in the previous report, there has been a noticeable increase in the attention being given to Weights and Measures. In fact, there have been several specific requests for assistance in this area. As a consequence, it might be well to point out that this is quite a different problem from that of materials standards and must be handled as such.

In the first place, this involves many factors which really form a whole "package". First, NBS experts must make a first-hand survey of the situation, personnel must be selected and trained at NBS, prototype standards must be made and calibrated, a complete laboratory set up, etc. - often on to the preparation of adequate legislation necessary for the implementation of a weights and measures program. All told, this is an effort which involves an expenditure of somewhere around \$100,000, to be paid by the recipient.

Under the statutory regulations which govern the operation of the NBS, these weights and measures services can become available to the Latin American countries, but only through the request to NBS from another Department of the U.S. Government. Specifically, this would be through the Department of State to the Department of Commerce.

In these instances wherein our AID Mission in a particular country may be a party to such a project, the initial effort must come from that mission.

### 16.2.1 Indoctrination

On this second trip to Latin America, I encountered far more requests to lecture to different groups on standards than were noted from the first trip. Most of these were directly connected with trying to use this means of obtaining added industry support for a standards program.

### 16.2.2 Organization

From all appearances, earlier efforts in organization are beginning to show results, particularly with respect to Paraguay and Bolivia wherein personal visits, written requests - or both - reflect the initiation of standards activities.

It is of interest to note that the "Institute" approach which was used so successfully in Ceylon seems to have become interesting to some of these Latin American countries.

### 16.2.3 Operation

In this area there are the activities of Bolivia which seem directed toward the "Institute" concept; Paraguay wherein the Engineering Society is taking the initiative; Ecuador where the Engineers are getting under way and where there may also be an institute; and on to Colombia where the matter rests upon the decision of the Minister of Development. In all of these, the present indications are in the direction of distinct preference for the independent or private standards body.

Unfortunately, there are some clouds on this standards horizon indicating some reorganizations.

### 16.2.4 Technical

The NBS is continuing to make a number of its staff available for this work. However, it should be kept in mind that, basically, these present efforts should eventually lead to inter-industry contacts between our own enterprises and those of Latin America. Because of this, there should be a much greater effort made to have U.S. industry participation in the standards-writing activities of COPANT.

## 17. Translations

There are two areas wherein this matter of standards translation are of an urgent nature:

1. For those of our standards which are needed now in Latin America
2. For the drafts of proposed COPANT standards in order that they may be, in the language of the country, circulated for study and comment.

Initial steps have already been taken to set up a service of this kind, but there is no long-range program nor the financing therefor.

This is a big and expensive, but highly essential operation.

## 18. The English-Metric Problem

The only significant change in this problem since the last report is that connected with the enforcement of metric system use in Brazil.

In the U.S., the ad hoc ASTM Committee on this subject has already issued suggested conversions and rules for their application. However, this is not the answer to the problem - only the beginning, and much more needs to be done.

## 19. Testing Facilities

This is a major problem, and it will probably take time in order to begin to solve it. Thus while there is currently a trend toward establishing national "institutes", which can include this activity among their services, such efforts can also encounter difficulties such as is the case with INTI in Buenos Aires (see 5.6).

## 20. Embassy

With the increased activities in the standards field, and also with the potential cooperation of AID in this standards work, those of us on these trips must increasingly rely on our Embassy personnel and facilities.

They are doing a fine job for us.

## 21. Recommendations

Those offered in the first trip report still hold true, the only difference being that there has been material progress made on some of the items. However, they are by no means concluded.

To these must be added the need of much closer cooperation with the AID Missions because of their potential role in the standards program.



## THE NATIONAL BUREAU OF STANDARDS

The scope of activities of the National Bureau of Standards at its major laboratories in Washington, D.C., and Boulder, Colorado, is suggested in the following listing of the divisions and sections engaged in technical work. In general, each section carries out specialized research, development, and engineering in the field indicated by its title. A brief description of the activities, and of the resultant publications, appears on the inside of the front cover.

### WASHINGTON, D. C.

**Electricity.** Resistance and Reactance. Electrochemistry. Electrical Instruments. Magnetic Measurements. Dielectrics. High Voltage. Absolute Electrical Measurements.

**Metrology.** Photometry and Colorimetry. Refractometry. Photographic Research. Length. Engineering Metrology. Mass and Volume.

**Heat.** Temperature Physics. Heat Measurements. Cryogenic Physics. Equation of State. Statistical Physics.

**Radiation Physics.** X-ray. Radioactivity. Radiation Theory. High Energy Radiation. Radiological Equipment. Nucleonic Instrumentation. Neutron Physics.

**Analytical and Inorganic Chemistry.** Pure Substances. Spectrochemistry. Solution Chemistry. Standard Reference Materials. Applied Analytical Research. Crystal Chemistry.

**Mechanics.** Sound. Pressure and Vacuum. Fluid Mechanics. Engineering Mechanics. Rheology. Combustion Controls.

**Polymers.** Macromolecules: Synthesis and Structure. Polymer Chemistry. Polymer Physics. Polymer Characterization. Polymer Evaluation and Testing. Applied Polymer Standards and Research. Dental Research.

**Metallurgy.** Engineering Metallurgy. Metal Reactions. Metal Physics. Electrolysis and Metal Deposition.

**Inorganic Solids.** Engineering Ceramics. Glass. Solid State Chemistry. Crystal Growth. Physical Properties. Crystallography.

**Building Research.** Structural Engineering. Fire Research. Mechanical Systems. Organic Building Materials. Codes and Safety Standards. Heat Transfer. Inorganic Building Materials. Metallic Building Materials.

**Applied Mathematics.** Numerical Analysis. Computation. Statistical Engineering. Mathematical Physics. Operations Research.

**Data Processing Systems.** Components and Techniques. Computer Technology. Measurements Automation. Engineering Applications. Systems Analysis.

**Atomic Physics.** Spectroscopy. Infrared Spectroscopy. Far Ultraviolet Physics. Solid State Physics. Electron Physics. Atomic Physics. Plasma Spectroscopy.

**Instrumentation.** Engineering Electronics. Electron Devices. Electronic Instrumentation. Mechanical Instruments. Basic Instrumentation.

**Physical Chemistry.** Thermochemistry. Surface Chemistry. Organic Chemistry. Molecular Spectroscopy. Elementary Processes. Mass Spectrometry. Photochemistry and Radiation Chemistry.

**Office of Weights and Measures.**

### BOULDER, COLO.

#### CRYOGENIC ENGINEERING LABORATORY

Cryogenic Processes. Cryogenic Properties of Solids. Cryogenic Technical Services. Properties of Cryogenic Fluids.

#### CENTRAL RADIO PROPAGATION LABORATORY

**Ionosphere Research and Propagation.** Low Frequency and Very Low Frequency Research. Ionosphere Research. Prediction Services. Sun-Earth Relationships. Field Engineering. Radio Warning Services. Vertical Soundings Research.

**Troposphere and Space Telecommunications.** Data Reduction Instrumentation. Radio Noise. Tropospheric Measurements. Tropospheric Analysis. Spectrum Utilization Research. Radio-Meteorology. Lower Atmosphere Physics.

**Radio Systems.** Applied Electromagnetic Theory. High Frequency and Very High Frequency Research. Frequency Utilization. Modulation Research. Antenna Research. Radiodetermination.

**Upper Atmosphere and Space Physics.** Upper Atmosphere and Plasma Physics. High Latitude Ionosphere Physics. Ionosphere and Exosphere Scatter. Airglow and Aurora. Ionospheric Radio Astronomy.

#### RADIO STANDARDS LABORATORY

**Radio Standards Physics.** Frequency and Time Disseminations. Radio and Microwave Materials. Atomic Frequency and Time-Interval Standards. Radio Plasma. Microwave Physics.

**Radio Standards Engineering.** High Frequency Electrical Standards. High Frequency Calibration Services. High Frequency Impedance Standards. Microwave Calibration Services. Microwave Circuit Standards. Low Frequency Calibration Services.

**Joint Institute for Laboratory Astrophysics-NBS Group (Univ. of Colo.).**

